

8-1: Composition of Functions

- What is the composite $g \circ f$?
- Find the domain of $f \circ g(x)$ when $f(x) = x^2 - 1$ and $g(x) = \frac{1}{x}$.
- For $f(x) = x^2 - 1$ and $g(x) = \frac{1}{x}$, find $f \circ g(x)$ and $g \circ f(x)$.
- In $f(x) = x^2 - 1$, what is x ?

8-2: Inverses of Relations

- What is an inverse?
- What is the inverse of a relation?
- How do we find an inverse?
- What is the Inverse Relation Theorem?
- What is the Horizontal-Line Test?
- What is the difference between the Vertical and Horizontal Line Tests?
- The domain of a function is the _____ of its inverse.

8-3: Properties of Inverse Functions

- What is the Inverse Function Theorem?
- How do you notate the inverse of f ? The inverse of b ?
- When you are asked to find a rule for an inverse, you are actually just finding $a(n)$ _____?
- What is the power function inverse theorem?

8-4: Radical Notation for n^{th} Roots

- How do you write $x^{\frac{1}{n}}$ in radical form?
- How do you write $x^{\frac{m}{n}}$ in radical form?
- Be able to rewrite things such as $\sqrt[3]{\sqrt[4]{\sqrt{x}}}$ with a single radical.
- Be able to use your calculator to estimate roots.

8-5: Products with Radicals

- What is the Root of a Product Theorem?
- Be able to simplify! "In order to simplify, we need to factor."
- Get plenty of practice with simplifying.
- Can you simplify?
- Hey, look! We get to simplify. I hope I remember how!
- For example, if you are trying to simplify a 5^{th} root, you need to factor it into a perfect fifth, such as 2^5 , 3^5 , 4^5 , x^5 , etc.

8-6: Quotients with Radicals

- Be able to rationalize the denominator.
- What does it mean to rationalize the denominator?
- If our denominator has something of the form $a\sqrt{x}$, we need to do what to rationalize it?
- If our denominator has something of the form $a + \sqrt{x}$, we need to do what to rationalize it?
- What is the conjugate of $a + \sqrt{x}$?
- I think we still need to be able to simplify.

8-7: Powers and Roots of Negative Numbers

- We CAN take the n^{th} root of a negative number when n is _____ or _____.
- We CANNOT take the n^{th} root of a negative number when n is _____.
- $\sqrt[n]{xy} = \sqrt[n]{x}\sqrt[n]{y}$ when what situation arises?

8-8: Solving Equations with Radicals

- What is an extraneous solution?
- How do we make sure we haven't found an extraneous solution?
- What is the distance formula?